

UNUSUAL CAUSES OF RAPTOR MORTALITY

by
Dwight G. Smith and Joseph R. Murphy
Department of Zoology
Brigham Young University
Provo, Utah 84601

Among the numerous and well-documented causes of raptor mortality discussed in the literature are pesticides, habitat disruption and destruction, predator control programs, and indiscriminate "sport" shooting (Ellis, Smith, and Murphy. *Great Basin Naturalist* 29:165, 1969). Recently we have noticed two types of less common or possibly less publicized causes of mortality among predatory birds.

The first involves the apparent electrocution of Golden Eagles (*Aquila chrysaetos*) and Bald Eagles (*Haliaeetus leucocephalus*) by high tension wires. We know of several cases in Utah; in one, at least nine eagles (five Golden and four Bald) were electrocuted over a period of two years by a power line located in Tooele County, Utah, near the U. S. Army's Deseret Chemical Activity. Bodies of the eagles were found beneath utility poles in various states of decomposition. In a second situation, a total of at least 47 Golden Eagles were evidently killed by a segment of power line in Beaver County, south-central Utah. This incident was discovered by local conservation officers and received considerable publicity in the Utah news media. The utility company subsequently provided adequate grounding to prevent further eagle losses.

All carcasses were examined and found to be free of shot and bullet holes. The relatively high tolerance levels of eagles to the 1080 bait poison used locally suggests that it, too, was not the cause of death. In these two cases, therefore, it was theorized that the eagles electrocuted themselves by short-circuiting the lines, probably during take-offs or landings. More recently, specific information regarding the details of this type of accident were supplies us by G. B. Peterson, Journeyman Lineman with the Utah Power and Light Company. On 14 January 1970, Peterson was patrolling a three-phase 12,740 volt power line running between the small communities of Clover and Vernon, Tooele County, Utah, seeking the cause of a temporary power failure. About 10 miles north of Vernon he found a freshly-killed Golden Eagle, which upon examination proved to have been extensively burned on one foot and the end of one wing. From the evidence at hand, Peterson surmised that the bird had contacted the middle phase with the foot and the outer (east phase) with the extended wing; this caused a short circuit of 12,740 volts to pass through the eagle's body. Incidentally, the eagle was a juvenile we had banded as a fledgling on 30 May 1969 in a nest near Goshen, Utah County, Utah, approximately 40 airline miles from the site of recovery.

Our second cause of raptor mortality is somewhat more bizarre. For the past 2 years we have been conducting studies on the ecology of predatory birds

nesting and roosting in the abandoned Ironton Steel Mill complex near Springville, Utah County, Utah. While searching for nest sites we chanced to investigate the underground tunnels connecting the blast furnace ovens with their 200-foot-high smokestack. Here we found the remains of four Barn Owls (*Tyto alba*), three Red-tailed Hawks (*Buteo jamaicensis*), and a Prairie Falcon (*Falco mexicanus*). An examination of the carcasses yielded no evidence of shooting or other overt causes of death. As the only entrance to the tunnels was by the circular opening at the top of the smokestack, we suggest that the birds had apparently roosted on the stack or more likely on the smoke deflector apparatus approximately 9 feet below and inside the stack, and had been unable to regain the rim in the narrow confines of the stack. In another part of the mill complex we found the remains of an Osprey (*Pandion haliaetus*) entangled in the pipes of a water cooling building. This bird had evidently somehow gained entrance to the pipe maze and had been unable to extricate itself.

Obviously there is some question as to the over-all significance of these types of mortality, particularly in light of such decimating causes of raptor reduction as pesticides and habitat destruction. They do, however, represent detrimental influences on local raptor populations. Electrocution, in particular, could have effects of a magnitude hitherto unsuspected.

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